

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Martin Starzmann

Serial No. : 09/463,598 Confirmation No.: 6529

REMARKS

In the Office Action mailed December 19, 2002, the Examiner has maintained the rejection of claims 1-14 under 35 U.S.C. 103(a) as being unpatentable over Miller et al., U.S. Patent No. 5,242,621. The Examiner states that Miller discloses corrosion inhibitors containing alkanolic, hydrocarbyl dicarboxylic and carbocyclic-substituted, alkanolic acids or salts which give high performance, heat transfer fluids and antifreezes, with improved properties including storage stability (see abstract). The Examiner further states that Miller teaches that the cyclohexane acid includes cyclohexyl carboxylic (formic) acid, cyclohexyl acetic acid and cyclohexyl propionic acid, which, if desired, can be included in the antifreeze or heat transfer compositions (col. 1, lines 40-42). The Examiner states that "although no examples of a coolant containing all of the instantly claimed components are disclosed" (see paper number 15, page 3, lines 6-8), the reference generally teaches that all the components may be used.

Applicant respectfully traverses this rejection. Miller discloses the use of a corrosion inhibitor in heat transfer fluid wherein the freezing point depressant is a glycol or a glycol ether. According to applicant's invention, by contrast, the heating/cooling fluid is based on an organic salt solution, wherein the organic salts are used a freezing point depressants. The heating/cooling fluids which are based on organic salt solutions, as in to applicant's invention, are strong ionic solutions and are very different from both the chemical and technical point of view from glycol based heating/cooling fluid. Thus, applicant states that one skilled in the art would not develop applicant's invention based on Miller because the properties of the two fluids are quite different. It would not

occur to one skilled in the art to replace glycol or glycol ether with organic salts because the properties and problems involved with using organic salts are not parallel to those of glycol. Applicant notes that all of the examples of Miller include either glycols or glycol ethers; no teaching or suggestion is given that glycol or glycol ethers can be replaced with organic salts. It would not have occurred to one skilled in the art that a corrosion inhibitor used together with glycol or glycol ether would function as a corrosion inhibitor in an organic salt solution. Therefore, applicant respectfully requests that this rejection be withdrawn.

The Examiner rejected claims 1-14 under 35 U.S.C. 103(a) as being unpatentable over Miller et al. and further in view of Back et al., U.S. Patent No. 4,689,165 or Kardos et al., U.S. Patent No. 5,993,684. The Examiner states that Back discloses a freezing point depressant free of glycol (col. 4, lines 33-37) and that Kardos discloses a glycol-free antifreeze liquid (col. 4, lines 35-49). The Examiner concludes that it would have been obvious to create applicant's heating or cooling mixture in view of Miller and further in view of Back or Kardos.

Applicant respectfully traverses this rejection. Obviousness rejections are based on 35 U.S.C. 103(a). In *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 221 USPQ 929, 933 the court stated that "Obviousness cannot be established by combining the teachings of the prior art to produced the claimed invention, absent some teaching or suggestion supporting the combination." The court elaborated by stating that "Under section 103, teaching of references can be combined *only* if there is some prior suggestion or incentive to do so." *Id.* The Examiner provides no such suggestion or teaching to support this combination of references. Back's invention is for de-icing and anti-icing surfaces, not for antifreeze or heating/cooling fluid. Kardos' invention is for a heat transfer liquid. One skilled in the art of heating/cooling fluid would not combine Miller with either Back or Kardos. Applicant doubts that those of ordinary skill in the art would have been encouraged by Miller, in

view of Back or Kardos to rely on these teachings in order to successfully accomplish applicant's invention. Thus applicant respectfully requests that this rejection be withdrawn.

Accompanying this Response to Office Action is a Declaration of Nikita Soubbotin, head of Applicant's laboratory and a technical expert regarding the above-identified application. In this Declaration, Mr. Soubbotin describes his work in the area of development of frost resistant, non-toxic heating/cooling methods and products. The purpose of this Declaration is both to show the nature and highly advantageous effects of applicant's invention and to explain its differences from the prior art. Mr. Soubbotin explains that he is unaware of any prior uses of a frost resistant, non-toxic heating/cooling fluid with a corrosive inhibitor. He says that glycols were the only product conventionally used for similar applications. He notes that one skilled in the art would have been led away from applicant's invention because earlier salt based heating/cooling fluids (such as calcium chloride) required inhibitors which had a high impact on the environment. He explains that Miller discloses a heating/cooling fluid containing glycol which is both toxic and damaging to the environment. Back et al. is distinguished because it is used for a different purpose (reducing ice formation). Kardos et al. is noted as being non-toxic, but unlike the present invention, is damaging to the environment.

As is confirmed by Mr. Soubbotin in paragraph 13 of the Declaration, the combination of ingredients found in applicant's invention is not obvious from the prior art because non-toxic, corrosion resistant heating/cooling fluid was not known in the prior art. In the last numbered paragraph of Mr. Soubbotin's Declaration, he states that the use of the corrosion inhibitor set forth in the application was surprising since there was difficulty in finding an effective corrosion inhibitor suited for strong ionic solutions constituted by the inventive salt solution. The inventive salt solution differs from prior corrosion inhibitors because it is not film forming, and therefore does not have a

reduced heat transfer between the heating/cooling fluid and a metal surface as occurs with film forming corrosion inhibitors. Mr. Soubbotin notes that the present invention is directed to the heating/cooling fluid, rather than to the cooling unit and the refrigerant which have been the main focus of those attempting to solve the problem to which the present invention is directed.

Applicant respectfully calls the Examiner's attention to applicant's Response mailed April 3, 2003 in which applicant presented evidence that the invention has become a commercial success and is sold under the trademark Temper® as a glycol-free heat transfer fluid which is non-toxic, environmentally compatible, has high corrosion protection and high thermal transfer properties. In this Response, applicant had submitted a brochure describing the product including its mechanism of corrosion protection along with a reference list citing installations using Temper®. Applicant respectfully states that this evidence of commercial success along with the Declaration by applicant's technical expert demonstrate the nonobviousness of applicant's invention.

It is respectfully submitted that the application is now in condition for allowance, and such action is requested. No new matter has been added. The examiner is invited to telephone the undersigned if there are any matters which could be discussed to expedite the prosecution of the above-identified application.

Respectfully submitted,

By: 

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